Parasagittal meningiomas comprise 20/30% of all intracranial meningiomas. Because of their location and by definition involvement of the sagittal sinus and and/or surrounding bridging veins, radical surgery without potential morbidity is challenging. A subtotal resection is often recommended with the argument that meningiomas are benign and slowly growing tumors. This simplistic approach is very controversial when a close look at long-term follow-ups is being given. Lesser degree of resection based on Simpson classification is associated with a higher recurrence rate. A 25 year long-term follow up study of this kind of tumors has been performed by Pettersson-Segerlind et al at the Karolinska Institute in Stockholm [1]. This study shows a 47% total recurrence in a cohort of 51 patients. Ten and 25 year recurrence rates for apparently radically operated parasagittal meningioma (Simpson grade 1 or 2) were 13% and 38% respectively, whereas they were 33% and 42% for Simpson grade 3 and 62% and 69% for Simpson grade 4. The relative risk for recurrence in Simpson grade 4 was 1.78 compared to Simpson grade 1-3. Sweden is a homogenous country with comprehensive cancer, mortality, and population registries that support collection of long-term data and enable this type of study of long-term survey study and natural history. Interestingly enough the 10 and 25 year mortality rates reported were 33% and 63% respectively. Of the total mortality 50% was caused by the tumor after 10 years and 48% after 25 years.

In a personal series of 100 cases of parasagittal meningiomas [2] in which a complete removal including resection of the intrasinal portion was attempted, recurrence rate after an overall 8 year follow-up was of 4%. Radical resection was achieved 93% of our cases and venous repair was achieved in 65% of the cases. The 3% mortality in our series occurred in complete occlusion of the Superior Sagittal Sinus and who had an “en bloc” removal of the tumor an invaded sinus. Fatal evolution was related to early post-op brain swelling and was hypothetized to be due to lack of venous reconstruction. This conduct was based on the “assumption” that complete occlusion of the sagittal sinus allows an “en bloc” resection with impunity. On the other side there was no mortality when sinus reconstruction was attempted; morbidity was low and likely related to bridging veins flow impairment. In a recent publication by the Sekhar group [3] on a series of 38 patients, a total resection with venous reconstruction by direct suturing or patching with a 85.7% post-operative sinus patency rate. Mortality was nil; one major post-operative complication occurred with full recovery, after venous reconstruction of a meningioma invading the torcular area. Although their low recurrence rate (5,3 %) may be attributed to the short follow-up (26.05 months), the low morbitmortality rate associated to venous reconstruction matches our series results. Thus a tailored reconstruction of the venous circulation to obtain complete parasagittal meningioma removal can be achieved with reasonable risks, provided a thorough assessment of the collateral circulation prior to surgery be made.

Although some authors are leaned over a conservative approach based on the argument that radiosurgery may assure tumor control the recurrence rate in those cases is not deniable. In a recent publication by Mathiesen [4] in a series of 100 meningiomas engaging major venous sinuses they have shown a 10% recurrence rate after a minimum of 10 years when Gamma-knife was given after a tailored microsurgical resection was performed, which according to their results is the same rate that the one when they attempted at “total removal”. Of note that in 42% of those Simpson I resections microscopic tumor growth was detected in the tumor resection margins. Furthermore they reported 18% mortality over ten year period follow-up for the overall series, with half of it due to uncontrollable meningioma despite of one or multiple radiosurgical treatments after surgery. Interestingly enough, in their 29 cases when radical tumor resection plus venous reconstruction was attempted, no mortality was reported; however the only mortality in their series occurred when an “en-bloc” resection without reconstruction in a “angiographically totally occluded sagittal sinus was performed.

Although complete removal of parasagittal meningiomas with venous reconstruction appears to be technically challenging, its overall mortality is low. This “active” policy to reduce recurrence rate and subsequent morbimortality [2,3] appears to be reasonable mostly in the case of younger patients. For meningiomas of WHO II and III grades, of course Radiosurgery/ Radiotherapy should rather be indicated specially for the WHO III grade meningiomas.
REFERENCES


